

REMARKS

On entry of this response, claim 1 has been amended and claims 15-20 added. Support for the amendment can be found, for example, in Figures 3-6 and the corresponding descriptions in the specification. No new matter has been introduced.

Now pending in the application are claims 1-20, of which claims 1 and 15 are independent.

I. Rejection of Claims 1-13 under 35 U.S.C. §103(a)

Claims 1-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,450,204 (hereinafter “Shigeyama”) in view of U.S. Patent No. 6,183,186 (hereinafter “Howells”). (Office Action, page 2). Applicants respectfully traverse this rejection in view of the amended claims.

A. Claim 1

Applicants respectfully submit that Shigeyama and Howells, alone or in any reasonable combination, do not teach or suggest “an image obtaining means moving along X, Y and Z shafts by the XYZ shaft transfer means, scanning a grating image by the frequency of N times to one side of the measuring object and, at the same time, to the other side of the measuring object supported and fixed to the work stage, obtaining the grating image changed by the one side of the measuring object by N times, and obtaining the grating image changed by the other side of the measuring object by N times,” as recited in amended claim 1.

The Shigeyama reference teaches an inspecting device for inspecting the printed state of cream solder. In the Shigeyama, the printed state of cream solder is inspected by projecting light patterns varying in phase onto a printed circuit board with cream solder and processing signals obtained by an image pick-up device for picking up the image on the surface of the printed circuit board using a phase shifting method. (Shigeyama, Abstract).

The Shigeyama reference, however, does not teach “an image obtaining means moving along X, Y and Z shafts by the XYZ shaft transfer means, scanning a grating image by the

frequency of N times to one side of the measuring object and, at the same time, to the other side of the measuring object supported and fixed to the work stage, obtaining the grating image changed by the one side of the measuring object by N times, obtaining the grating image changed by the other side of the measuring object by N times,” as recited in claim 1. There is no disclosure in the Shigeyama reference of scanning a grating image by the frequency of N times to one side of the measuring object and, at the same time, to the other side of the measuring object supported and fixed to the work stage, as recited in claim 1.

The Howells teaches a wafer handling system in which wafers are transferred from cassettes placed in a cassette holder at a loading station to a conveyor and through a wafer processing stage. (Shigeyama, Abstract). The Howells reference, however, does not teach “an image obtaining means moving along X, Y and Z shafts by the XYZ shaft transfer means, scanning a grating image by the frequency of N times to one side of the measuring object and, at the same time, to the other side of the measuring object supported and fixed to the work stage, obtaining the grating image changed by the one side of the measuring object by N times, obtaining the grating image changed by the other side of the measuring object by N times,” as recited in claim 1. The Shigeyama reference is silent about scanning a grating image by the frequency of N times to one side of the measuring object and, at the same time, to the other side of the measuring object supported and fixed to the work stage, as recited in claim 1.

For the reasons set forth above, Applicants respectfully submit that Shigeyama and Howells, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 1. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the above 35 U.S.C. §103(a) rejection of claims 1-13.

B. Claims 2-13

Claims 2-13, which depend from claim 1, are not rendered obvious over the cited references. For the reasons set forth above with respect to claim 1, Applicants respectfully request that the Examiner reconsider and withdraw the above 35 U.S.C. §103(a) rejection of claims 2-13.

Furthermore, Applicants respectfully submit that Shigeyama and Howells, alone or in any reasonable combination, do not teach or suggest “a distributor, which is installed to a lower side of the projection portion, distributes the grating image irradiated through a projection optical system of the projection portion through first and second mirrors transferred by a mirror transfer apparatus and distributes the grating image through third and fourth mirrors which are installed to be horizontal to the left/right side of the first and second mirrors and first and second filters,” as recited in claim 5.

The Examiner specifically refers to Shigeyama, column 4, lines 24-30 as teaching the above feature. (Office Action, page 6). Applicants respectfully disagree.

The Shigeyama reference, at column 4, lines 24-30, recites:

The illumination unit 2 including the optical fibers 20, condenser lenses 21 and 22, constant temperature control device 26 incorporated with the liquid crystal element 24, and the projection lens 25, etc. as described earlier with reference to FIG. 2, is also mounted on optical chassis 31 with the light therefrom being directed onto the printed circuit board by a deflection mirror 34.

The above portion of the Shigeyama reference, however, does not teach “a distributor, which ... distributes the grating image through third and fourth mirrors which are installed to be horizontal to the left/right side of the first and second mirrors and first and second filters,” as recited in claim 5. The Shigeyama reference does not teach or suggest the structure of a distributor that includes the first, second, third and fourth mirrors and the first and second filters recited in claim 5.

In view of the arguments set forth above, Applicants respectfully submit that Shigeyama and Howells, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 5. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the above 35 U.S.C. §103(a) rejection of claim 5.

II. Rejection of Claim 14 under 35 U.S.C. §103(a)

Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over Shigeyama in view of Howells, and further in view of U.S. Patent No. 6,094,760 (hereinafter “Nonaka”).

(Office Action, page 9). Applicants respectfully traverse this rejection in view of the amended claims.

Claim 14 depends from claim 1 and, as such, incorporates the subject matter of claim 1.

Applicants submit that Shigeyama, Howells and Nonaka, alone or in any reasonable combination, do not teach or suggest “an image obtaining means moving along X, Y and Z shafts by the XYZ shaft transfer means, scanning a grating image by the frequency of N times to one side of the measuring object and, at the same time, to the other side of the measuring object supported and fixed to the work stage, obtaining the grating image changed by the one side of the measuring object by N times, obtaining the grating image changed by the other side of the measuring object by N times,” as recited in amended claim 1.

As discussed above, Shigeyama and Howells do not teach or suggest the image obtaining means recited in claim 1.

The Nonaka reference teaches a treatment bed system for radiation therapy. (Nonaka, abstract). The Nonaka reference, however, does not teach or suggest “an image obtaining means moving along X, Y and Z shafts by the XYZ shaft transfer means, scanning a grating image by the frequency of N times to one side of the measuring object and, at the same time, to the other side of the measuring object supported and fixed to the work stage, obtaining the grating image changed by the one side of the measuring object by N times, obtaining the grating image changed by the other side of the measuring object by N times,” as recited in claim 1. There is not disclosure in Nonaka about scanning a grating image by the frequency of N times to one side of the measuring object and, at the same time, to the other side of the measuring object supported and fixed to the work stage.

In view of the arguments set forth above, Applicants respectfully submit that Shigeyama, Howells and Nonaka, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 1. Claim 14, which depends from claim 1, is not rendered obvious over the cited references. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 14.

III. New Claims

Claims 15-20 are added to clarify the scope of the present application. Support for the new claims can be found in the original claims, Figures 3-6 and the corresponding descriptions in the specification. No new matter has been introduced.

Independent claim 15 recites “a distributor disposed to receive the grating image and to distribute the grating image to the object, the distributor including: a first mirror distributing the grating image to a first side of the object, and a second mirror distributing the grating image to a second side of the object, the second side of the object being opposite the first side of the object.” Applicants respectfully submit that none of the cited references disclose or suggest a distributor that includes the first mirror and the second mirror recited in claim 15. Therefore, Applicants respectfully request that the Examiner pass new claim 15 to allowance.

Claims 16-20 depend from claim 15 and, as such, incorporate the subject matter recited in claim 15. For at least the reasons set forth above, Applicants respectfully submit that claims 16-20 also define over the cited references. Therefore, Applicants respectfully request that the Examiner pass claims 16-20 to allowance.

IV. Conclusion

In view of the above arguments, Applicant believes the pending application is in condition for allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicant's attorney at (617) 227-7400.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. WI7-004US. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

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